

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) A computer system ~~reconfigurable cache memory~~ comprising:
 - a cache programmable-memory-unit;
 - a functional unit in communication with the cache programmable-memory-unit, wherein the functional unit executes applications using the cache programmable-memory-unit; and
 - a reconfiguration module for determining an optimal configuration of the cache memory for a particular application and programming the cache programmable-memory-unit to the optimal configuration.
2. (Currently Amended) The computer system ~~reconfigurable cache memory~~ of claim 1, wherein the cache programmable-memory-unit is a field-programmable gate array.
3. (Currently Amended) The computer system ~~reconfigurable cache memory~~ of claim 1, wherein the reconfiguration module supplies a vector representing the optimal configuration determined to the cache programmable-memory-unit.
4. (Currently Amended) The computer system ~~reconfigurable cache memory~~ of claim 1, wherein the reconfiguration module determines the optimal configuration by collecting performance information and analyzing the collected performance information.
5. (Currently Amended) The computer system ~~reconfigurable cache memory~~ of claim 1, wherein the cache programmable-memory-unit, the functional unit, and the reconfiguration unit are combined into a single system.

6. (Currently Amended) A method of reconfiguring cache memory comprising:
- determining an optimal configuration of the cache memory for a particular application executed by a functional unit using ~~a-the cache programmable-memory-unit~~; and
 - programming the cache programmable-memory-unit to the optimal configuration.
7. (Currently Amended) The method of claim 6, further comprising:
- determining another optimal configuration of the cache memory for another particular application executed by the functional unit using the cache programmable memory-unit; and
 - programming the cache programmable-memory-unit to the another optimal configuration.
8. (Currently Amended) The method of claim 7, further comprising:
- dynamically switching between programming the cache programmable-memory-unit to the optimal configuration and the another optimal configuration based on which application is being executed by the functional unit.
9. (Currently Amended) The method of claim 6, wherein the determining of the optimal configuration of the cache memory for a particular application executed by a functional unit using ~~a-the cache programmable-memory-unit~~ comprises:
- collecting performance information; and
 - analyzing the collected performance information.
10. (Currently Amended) The method of claim 6, wherein the programming of the cache programmable-memory-unit comprises:
- creating a vector representing the optimal configuration; and
 - sending the vector to the cache programmable-memory-unit.

11. (Original) The method of claim 10, wherein a field programmable gate array configuration generator tool creates the vector.
12. (Currently Amended) A computer system ~~reconfigurable-cache-memory~~ comprising:
- means for determining an optimal configuration of cache memory for a particular application executed by a functional unit using a cache ~~programmable-memory~~ unit; and
 - means for programming the cache ~~programmable-memory-unit~~ to the optimal configuration.
13. (Currently Amended) The computer system ~~method~~ of claim 12[[6]], further comprising:
- means for determining another optimal configuration of cache memory for another particular application executed by the functional unit using the cache ~~programmable-memory-unit~~; and
 - means for programming the cache ~~programmable-memory-unit~~ to the another optimal configuration.
14. (Currently Amended) The computer system ~~method~~ of claim 13[[7]], further comprising:
- means for dynamically switching between programming the cache ~~programmable~~ memory-unit to the optimal configuration and the another optimal configuration based on which application is being executed by the functional unit.
15. (Currently Amended) The computer system ~~method~~ of claim 12[[6]], wherein the means for determining of the optimal configuration of the cache memory for a particular application executed by a functional unit using a cache ~~programmable-memory-unit~~ comprises:
- means for collecting and analyzing performance information.

16. (Currently Amended) The computer system ~~method~~ of claim 12[[6]], wherein the means for programming of the cache ~~programmable-memory-unit~~ comprises:
- means for creating a vector representing the optimal configuration and sending the vector to the cache ~~programmable-memory-unit~~.
17. (Currently Amended) A computer system ~~reconfigurable-cache~~ comprising:
- a field-programmable gate array;
- a functional unit in communication with the field-programmable gate array, wherein the functional unit executes applications using the field-programmable gate array; and
- a reconfiguration module for determining an optimal configuration of the field-programmable gate array ~~memory~~ for a particular application and programming the field-programmable gate array to the optimal configuration,
- wherein the reconfiguration module determines the optimal configuration by collecting performance information and analyzing the collected performance information.
18. (Currently Amended) The computer system ~~reconfigurable-cache~~ of claim 17, wherein the reconfiguration module supplies a vector representing the optimal configuration determined ~~to~~ for the field programmable gate array.
19. (Currently Amended) The computer system ~~reconfigurable-cache~~ of claim 17, wherein the field programmable gate array, the functional unit, and the reconfiguration unit are combined into a single system.
20. (New) The computer system of claim 1, wherein the cache memory is a programmable memory module.